

Claim 1 has been amended to more clearly define an aspect of the invention. Support for that amendment is in the specification at page 10, lines 10-20. New claims 41-45 correspond to original claims 2-6, which depended from claim 1 as filed. No new matter is added. Claims 1, 6, 7, 20, 32 and 37 have been amended to correct minor typographical errors (claims 1, 29 and 32) and for clarity (claims 6, 7 and 37). The amendments to claims 7 and 37 merely change the article "the" to "a". The amendment to claim 6 merely re-phrases the phrase "and others". Claims 26, 27 and 28 have been amended to correctly depend from claims 25, 26 and 26 respectively, and thus correct clerical errors. Claim 2 has been amended to include the subject matter of its original parent claim 1, and claims 3, 5 and 6 have been amended to depend from amended claim 2.

The substance of all claims 2-40, as amended, is identical to that of those claims as filed. Claim 1 has been amended to more clearly distinguish that claim from the prior art. No new matter is added.

In the Office Action, claims 1-39 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite. As noted above, claims 1, 6, 7, 29, 32, and 37 are amended to correct typographical and minor errors, which do not affect the substance of the claims subject matters in any way. In view of these amendments, there is no proper basis for the §112 rejection. That rejection should now be reconsidered and withdrawn.

In the Office Action, claims 1-6 and 29-30 were rejected under 35 U.S.C. 102(e) as "being clearly anticipated by U.S. Patent No. 5,830,150, to Palmer et al" (Palmer). Issue is taken with that position.

With particular respect to claim 2 (and claims 3-6 dependent thereon), it should be noted that claim 2 is directed to a system wherein a user can selectively control a display device (in associated regions of a display device) to display two or more of a larger number of possible patient data sets of information, wherein at least one subset is representative of a plot of at least two measured patient characteristics. By way of example, applicants' FIG. 2A, lower portion, shows three measured patient characteristics as a function of time, in the same region of the display. There is no teaching or suggestion in Palmer of this claimed aspect of the invention. In contrast, Palmer shows only a single measured patient characteristic in any single region of his display. There is no instance or suggestion in Palmer multiple characteristics may be displayed in any single region of its display. Thus,

there is no proper basis for the §102 rejection of claim 2 (and claims 3-6 dependent thereon),. The §102 rejection as applied to claims 2-6 should be reconsidered and withdrawn.

With particular respect to claim 1 (and new claims 41-45 dependent thereon), it should be noted that claim 1 has been amended to explicitly define a display having a split-screen region in which a patient data subset is displayed in tabular form in one portion of the split-screen, and wherein the display signal generator is responsive to a user "drag-and-drop" action with respect to a selected portion of the tabular form data, to display the selected portion in graphical form in a second portion of the split-screen region. There is no teaching or suggestion of any such split-screen display in Palmer. Accordingly, there is no proper basis for a §102 rejection of claim 1 (and claims 41-45 dependent thereon). The §102 rejection as applied to claim 1, and as it might apply to claims 41-45, should be reconsidered and withdrawn.

With particular regarding to claim 29 (and claims 30 and 31 dependent thereon), it should be noted that claim 29 defines a "user select device" which is responsive to user action to display one or more discrete phrases and select a sequence of one or more of those discrete phrases and identify text entry points for user insertion of additional text to be displayed, and means for entering and/or deleting text to be displayed. Claim 29 thus defines a system for rapidly and adaptively generating text displays using stored discrete phrases.

There is no teaching or suggestion in Palmer that corresponds to the system defined by claim 29. Accordingly, there is no proper basis for the outstanding §102 rejection of claim 29 (and claims 30 and 31 dependent thereon). The §102 rejection insofar as based on Palmer, as applied to claims 29-31, should be reconsidered and withdrawn.

At pages 2-3 of the Office Action, claims 7-32, 34-35 and 37-39 were rejected under 35 U.S.C.102(e) as "being clearly anticipated by U.S. Patent No. 5,713,350 to Yokota et al" (Yokota), and claims 33 and 36 were rejected under 35 U.S.C.103(a) as unpatentable over Yokota. Issue is taken with those positions.

With particular respect to claim 7 (and claims 8-28 dependent thereon), it should be noted that the "user device" defined in subparagraph ii is responsive to a user-action-initiated "selection signal" where the particular subset is associated with a user job function

or department. The feature of claim 7 is illustrated in the tool bar of FIG. 2B of the subject application in which the icons "Physician", "Nurse" and "Laboratory" appear. In response to clicking on Physician, a physician's view (i.e. a data subset associated with the job function "physician") is displayed. Similarly, in response to clicking on Nurse, a nurse's view (i.e. a data subset associated with the job function "nurse") is displayed. Similarly, in response to clicking on Laboratory, a laboratory department's view (i.e. a data subset associated with a laboratory department) is displayed.

In Yokota, there is no corresponding division of subsets of data which may be displayed in response to user clicking, or otherwise activating, a screen displayed "job function" icon or the like. Thus, there is no proper basis for the outstanding §102 rejection of claim 7 (and claims 8-28 dependent thereon). The §102 rejection as applied to claims 7-28 should be reconsidered and withdrawn.

With particular regard to claim 29 (and claims 30 and 31 dependent thereon), it should be noted that claim 29 defines a "user selected device" which is responsive to user action to display one or more discrete phrases and select a sequence of one or more of those discrete phrases and identify text entry points for user insertion of additional text entry points for user insertion of additional text to be displayed, and means for entering and/or deleting text to be displayed. Claim 29 thus defines a system for rapidly and adaptively generating text displays using stored discrete phrases.

There is no teaching or suggestion in Palmer that corresponds to the system defined by claim 29. Accordingly, there is no proper basis for the outstanding §102 rejection of claim 29 (and claims 30 and 31 dependent thereon). The §102 rejection insofar as based on Yakota as applied to claims 29-31 should be reconsidered and withdrawn.

With particular regard to claim 32 (and claims 33-36 dependent thereon), it should be noted that claim 32 defines a system that, for a patient, displays "progress" information for a patient, particularly displaying "unresolved problems" of the patient, "treatment goals" (i.e. desired results to resolve the problems) and "treatment plans" (i.e. the steps determined by a physician (for example) to attain the treatment goals). This display feature of claim 32 is not taught or suggested by Yokota. Instead Yokota merely generates a room-by-room tracking and treatment-applying display for a patient, so that a central data

repository can gather data from, and instruct tests for, a patient who is (to be) treated at numerous locations.

Accordingly, there is no proper basis for the §102 (and the outstanding §103) rejection of claim 32 (and claims 33-36 dependent thereon). The §102 rejection as applied to claims 32, 34-35, and the §103 rejection as applied to claims 33 and 36, should be reconsidered and withdrawn.

With particular regard to claim 37 (and 38 and 39 dependent thereon), it should be noted that claim 37 defines a supervised medical order display system. In particular, the claimed system displays information representative of actions taken regarding delivery of a drug (including date, time and dosage) and generates "alarms" when the "actions taken" data does not correspond to stored physician orders. There is no corresponding display taught or suggested by Yokota. Accordingly, there is no proper basis for the §102 rejection of claims 37 (and 38 and 39 dependent thereon). The §102 rejection as applied to claims 37-39 should be reconsidered and withdrawn.

CONCLUSION

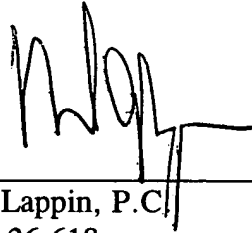
Claim 40 is allowed. There now is no proper basis for the outstanding rejections under §112, §102 and §103 of claims 1-40, nor is there any proper basis for the rejection of new claims 41-45. The outstanding rejections should be reconsidered and withdrawn. All claims 1-45 are believed to be in condition for allowance. Passage to issue is requested.

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A check in the amount of \$85.00 is enclosed to cover the new claim fee and a check in the amount of \$445.00 is enclosed to cover the Three Month Extension of Time. Should any additional fees be due, please charge any additional fees or credit any overpayment associated with this communication to our Deposit Account No. 50-1133.

Respectfully submitted,

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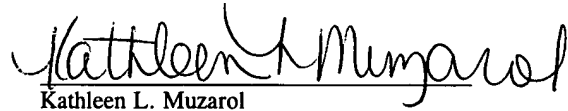
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April 11, 2001

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Date: April 11, 2001


Kathleen L. Muzarol

a value which is outside a permitted range, an out-of-range message appears, prompting the user to check the value. Such masks cannot be overridden by the medical team and therefore ensure the integrity of the information in the system.

Split Screen Drag and Drop Display

97 FIG. 2A shows an exemplary screen display showing Vital Signs data for a patient in both tabular and graphical forms. A user may use the graphics "button to select graphic-only, tabular-only, or graphic/tabular (as illustrated) form. When in the latter form, the user can selectively determine which data is graphed by "clicking" on a row of tabular data and "dragging and dropping" that row to the graphic display region, where that tabular data is then illustrated in graphic form on the then-effective time base for the screen. Similarly, to simplify or otherwise customize the graphic display, the user may "click" on one of the graphs and "drag and drop" that graph to the tabular region of the screen, removing that graph from the graphic display region of the screen. Preferably, the different graphs in the graphic display region are different colors, and are coordinated with the colors of the background for the respective legends for the data in the tabular region of the display.

Multiple Image Display

In general, the multiple image display aspect of the invention provides a multiple image medical information system. The display 12 is responsive to display signals for generating n medical data images in an image field, where n is an integer, and where each of the images is in an associated one of n regions of the image field of display 12. A multitasking display controller generates the display signals. That controller includes a data device, a user select device, and a display signal generator. The data device generates patient data representative of patient-related information, including m subsets of the patient data, where m is an integer greater than n . The user select device is responsive to user action to select k of the m subsets of patient data, where k is an integer greater than 1 and less than or equal to n . The display signal generator responsive to the user select device for generating k of the display signals, each being representative of an associated one of the selected subsets of patient data and being associated with one of the regions of the image field. The resultant k medical data images correspond to the k selected subsets of patient data and are displayed on the display 10 in the respective associated regions of the image field. In one form, at least one of the m subsets of

1. A multiple image medical information system, comprising:
- A. a display device responsive to display signals for generating n medical data images in an image field, where n is an integer, each of said images being in an associated one of n regions of said image field,
 - B. a multitasking display controller for generating said display signals, including:
 - i. data device for generating patient data representative of patient-related information, said patient data including m subsets of said patient data, where m is an integer greater than n ,
 - ii. user select device responsive to user action to select k of said m subsets of said patient data, where k is an integer greater than 1 m and less than or equal to n ,
 - iii. display signal generator responsive to said user select device for generating k of said display signals, each of said k display signals being representative of an associated one of said selected subsets of patient data and being associated with one of said regions of said image field,
- whereby said k medical data images corresponding to said k selected subsets of said patient data are displayed on said display devices in the respective associated regions of said image field, and
- wherein one of said regions associated with one of said subsets is a split-screen region having a first subregion and a second subregion, and
- wherein said display signal generator effects display of said subset of patient data in tabular form in said first subregion, and
- wherein said display signal generator is responsive to a user drag-and-drop action and a selected portion of said data in tabular form to effect a graphical display of said selected portion in said second subregion.

1 A multiple image medical information system, comprising:

2 A. a display device responsive to display signals
 3 for generating n medical data images in an
 4 image field, where n is an integer, each of
 5 said images being in an associated one of n
 6 regions of said image field,

7 B. a multitasking display controller for
 8 generating said display signals, including:

- 9 i. data device for generating patient data representative of
 10 patient-related information, said patient data including m
 11 subsets of said patient data, where m is an integer greater
 12 than n ,
 13 ii. user select device responsive to user action to select k of said
 14 m subsets of said patient data, where k is an integer greater
 15 than 1 m and less than or equal to n ,
 16 iii. display signal generator responsive to said user select device
 17 for generating k of said display signals, each of said k
 18 display signals being representative of an associated one of
 19 said selected subsets of patient data and being associated
 20 with one of said regions of said image field,

21 whereby said k medical data images corresponding to said k selected
 22 subsets of said patient data are displayed on said display
 23 devices in the respective associated regions of said image
 24 field

25 wherein at least one of the m subsets of patient data is representative
 26 of a plot of at least two measured patient characteristics as a
 27 function of a reference parameter on a common scale.

1 3. A system according to claim 2 wherein said reference parameter is time.

1 9 A. A system according to claim 2 wherein for said one subset of patient data
2 said measured characteristics and said reference parameters are selectively determined by a
3 user.

1 10 5. A system according to claim 2 wherein the data of at least one of said m
2 subsets of patient data corresponds to measured patient characteristics and associated
3 reference parameter values.

1 11 6. A system according to claim 2 wherein said measured patient characteristics
2 are from the set consisting at least of blood pressure and said associated reference
3 parameters are from the set consisting at least of time.

1 7. A medical information system, comprising:

2 A. a display device responsive to display signals for generating an
3 image,

4 B. a display controller for generating said display signals, including:

- 5 i. means for receiving n sets of data, where n is an integer
6 greater than 1, each data set being representative of medical
7 information,
8 ii. user device responsive to a user action to selectively generate
9 a selection signal representative of one of k subsets of said n
10 data sets, each of said subsets being associated with one of k
11 user job functions or departments, where k is an integer
12 greater than one,
13 iii. means responsive to said selection signal for generating
14 display signals representative of a subset associated with said
15 generated selection signal,

16 whereby said image corresponds to said the subset associated with said generated selection
17 signal.

1 8. The system according to claim 7 wherein said user job functions are
2 selected from the group consisting of doctor, nurse, pharmacist, administrator, insurance
3 coordinator, quality controller, and assistants thereto.

1 9. The system according to claim 7 wherein said departments are selected
2 from the group consisting of medical, pharmacy, administration, finance, insurance,
3 epidemiology, human services, and statistical and academic studies departments.

1 10. The system according to claim 8 wherein the respective ones of said n sets
2 of data include sets representative of information from the group comprising patient
3 identity and admission information, patient diagnosis information, patient measurement
4 information, patient treatment plan information, patient order information, patient
5 treatment information

1 11. The system according to claim 10 wherein one of said user job functions is
2 doctor and said k subsets are selected from the group consisting of patient history, physical
3 examination data, current drug data, problem data, orders, progress notes, and summary
4 reports.

1 12. The system according to claim 10 wherein one of said user job functions is
2 nurse and said k subsets are selected from the group consisting of problem data, care plan,
3 orders, and critical pathways.

1 13. The system according to claim 10 wherein one of said user job functions is
2 pharmacist and said k subsets are selected from the group consisting of drug orders, drug
3 interactions and drug reference data.

1 14. The system according to claim 10 wherein one of said user job functions is
2 administrator and said k subsets are selected from the group consisting of hospitalization
3 days, procedures, and medical staff data.

1 15. The system according to claim 10 wherein one of said user job functions is
2 insurance coordinator and said k subsets are selected from the group consisting of patient
3 cost data, risk factor data and claim data.

1 16. The system according to claim 10 wherein one of said user job functions is
2 quality controller and said k subsets are selected from the group consisting of procedure
3 time data, staff performance data, and disease/hospitalization data.

1 17. The system according to claim 10 wherein one of said user department is
2 medical and said k subsets are selected from the group consisting of patient history,
3 physical examination data, current drug data, problem data, orders, progress notes, and
4 summary reports.

1 18. The system according to claim 10 wherein one of said user department is
2 pharmacy and said k subsets are selected from the group consisting of drug orders, drug
3 interactions and drug reference data.

1 19. The system according to claim 10 wherein one of said user department is
2 administration and said k subsets are selected from the group consisting of hospitalization
3 days, procedures, and medical staff data.

1 20. The system according to claim 10 wherein one of said user department is
2 finance and said k subsets are selected from the group consisting of patient cost data,
3 procedure cost data, and staff cost data.

1 21. The system according to claim 10 wherein one of said user department is
2 insurance and said k subsets are selected from the group consisting of patient cost data,
3 risk factor data and claim data.

1 22. The system according to claim 7 wherein said display controller is a
2 programmed digital computer.

1 23. The system according to claim 22 wherein said computer having a window-
2 based operating system displaying icons representative of the respective ones of said job
3 functions and departments, and said user device is a pointing device operatively connected
4 to said computer by way of said operating system.

1 24. The system according to claim 23 wherein said pointing device is selected
2 from the group consisting of keyboard, light pen, mouse, trackball, touchpad, voice
3 controlled pointer.

1 25. The system according to claim 7 wherein said controller includes access
2 means for selectively controlling operability of said user device by users.

3 26. The system according to claim 25 wherein said access means includes
4 means to control said user device to be interactive for one or more users in a first user set
5 and to be read-only for one or more of said selected subsets for one or more users in a
6 second user set.

7 27. The system according to claim 26 wherein said first user set includes users
8 having the job function of physicians.

9 28. The system according to claim 26 wherein said second user set includes
10 user having the job function of nurse.

11 29. A medical information system, comprising:
12 A. a display device responsive to display signals for generating text in
13 an image field,
14 B. a display controller for generating said display signals, including:
15 i. memory including stored data representative of a plurality of
16 discrete phrases, each of said phrases being a sequence of
17 words, or abbreviations or symbols therefor, representative
18 of a medical condition,
19 ii. user select device responsive to a user action to:
20 a. display one or more of said plurality of discrete
21 phrases,
22 b. select a sequence of one or more of said phrases and
23 identify text entry points representative of desired
24 positions of said phrases in said image field,
25 iii. user text entry device responsive to user action to selectively
26 determine text to be deleted from said selected sequence of
27 phrases and additional text to be displayed in said image

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- field at desired positions in said image field in or between
said selected phrases,
- iv. display signal generator responsive to said select device and
said text entry device for generating said display signals, said
display signals being representative of said selected phrases
and said determined text at their respective desired positions
in said image field.

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30. A system according to claim 29 wherein said user select device is selected
from the group consisting of keyboard, lightpen, mouse, trackball, touchpad and speech
recognition text generator.

31. A system according to claim 29 wherein said user text entry device includes
one from the group consisting of a keyboard and a microphone.

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32. A patient treatment and progress monitor system comprising:
- A. a display device responsive to display signals for generating text in
an image field,
- B. a memory including stored:
- i. .problem data representative of one or more possible
problems associatable with a patient,
- ii. treatment goal data representative of one or more treatment
goals associated with each of said possible problems,
- iii. treatment plan data representative of one or more treatment
plans associated with each of said possible problems, and
- iv. patient data representative of
- a. said patient,
- b. one or more unresolved problems associated with
said patient, each of said unresolved problems
corresponding to one or more of said possible
problems, and

- 17 c. zero, one, or more of said treatments associated with
18 each of said unresolved problems,

19 C. a display controller for generating said display signals, said display
20 controller including a user screen entry device selectively responsive
21 to user action to:

- 22 i. generate a display signal representative of the identity of a
23 patient for whom treatment and progress information is to be
24 displayed, and
25 ii. generate a display signal representative of:
26 a. selected problem data corresponding to said
27 unresolved problems for said patient,
28 b. treatment goal data associated with said selected
29 problem data for said patient, and
30 c. treatment plan data associated with said selected
31 problem data for said patient

1 33. A system according to claim 32, wherein said memory further includes
2 stored cost data associated with said treatment plan data, said cost data being representative
3 of the cost of effecting said treatment plans, and
4 wherein said user screen entry device is selectively responsive to user action to generate a
5 display signal representative of the cost of said treatment plan associated with said selected
6 problem data for said patient.

1 34. A system according to claim 32 wherein said user screen entry device is
2 responsive to user action to generate an order signal indicative of a treatment plan to be
3 effected.

1 35. A system according to claim 34 further comprising means for selectively
2 generating a display signal representative of said order signal.

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36. A system according to claim 34, wherein said memory further includes stored cost data associated with said treatment plan data, said cost data being representative of the cost of effecting said treatment plans, and wherein said user screen entry device is selectively responsive to user action to generate a display signal representative of the cost of said treatment plan associated with said selected problem data for said patient.

1 37. A medical order information display system, comprising:

- 2 A. a display device responsive to signals to
3 generate a medical data image;
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5 B. storage device for storing data representative
6 of patient orders,
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8 C. order device responsive to user action to
9 generate and store order data in said storage
10 device, said order data being representative of
11 patient orders, said order data for a patient
12 including:
13 i. order data representative of the identity of a prescriber of a
14 prescription,
15 ii. i.d. data representative of the identification of said patient,
16 iii. drug data representative of a drug prescribed for a patient in
17 accordance with the prescription, and
18 iv. administration data representative of prescribed dosage and
19 administration times in accordance with said prescription,
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21 D. a display controller for generating said
display signals, including:
i. selectively operative means for generating said display
signals wherein at least information representative of said

i.d. data, said drug data, and said administration data is displayed on said display device,

ii. selectively operative administrator device responsive to user action to generate and store in said storage device, action data representative of an action taken with respect to said patient and one of said prescriptions, said action data for one of said prescriptions being representative:

- a. the delivery of a drug to said patient
- b. the identity of said drug delivered to said patient, and
- c. the dose and time of said drug delivered to said patient,

iii. monitor means for monitoring said order data for one or more of said patients and for detecting when action data does not correspond correct fulfillment of said order data and in responsive to thereto, generating a display signal representative of an alarm.

38. The system according to claim 37 wherein said monitor means generates in conjunction with said alarm display signal, an additional alarm from the group consisting of audible alarm, visual alarm and data alarm.

39. A system according to claim 37 wherein said order data further includes: authentication data representative of a encrypted identifier uniquely associated with said prescription, and

wherein said user device further includes means for generating by a user an access request associated with said authentication data for a selected one of said prescriptions, and

wherein said display generator includes means for confirming that said access request corresponds to said authentication data for said prescription and upon such confirmation, enabling said user device to modify said data for said patient and for preventing modification of said order data otherwise.

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- 1 40. A medical information calculator display system, comprising:
- 2 A. a display device responsive to display signals to generate a medical
- 3 data image,
- 4 B. a display controller for generating said display signals, including:
- 5 i. storage device for storing:
- 6 a. at least two primary level computer programs for
- 7 selectively effecting the determination of an
- 8 associated first level intermediate value from a
- 9 plurality of primary values in accordance with a
- 10 predetermined relationship between said primary
- 11 values, wherein at least one of said primary values is
- 12 representative of a measured parameter of a patient,
- 13 b. zero, one or more intermediate level computer
- 14 programs for selectively effecting the determination
- 15 of an associated second level intermediate value from
- 16 at least one of said first level intermediate values and
- 17 a primary value representative of a measured
- 18 parameter of a patient, in accordance with a
- 19 predetermined relationship between said one of said
- 20 first level intermediate values and said primary
- 21 values,
- 22 ii. first memory means for storing said primary values other
- 23 than those representative of measured patient parameters,
- 24 said first memory means including data values representing
- 25 said primary values other than those representative of
- 26 measured patient parameters,
- 27 iii. second memory means for storing said primary values
- 28 representative of measured patient values, said second

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29 memory means including data values representative of fewer
 30 than all of said primary values representative of measured
 31 patient parameters,

32 iv. user device responsive to user actions to generate a request
 33 signal representative of a request to display a computed
 34 value, said computed value corresponding to a value
 35 defined by a combination of said predetermined
 36 relationships;

37 v. processor means responsive to said request signal to invoke
 38 one or more of said primary level programs and zero, one
 39 or more of said intermediate level programs to effect the
 40 computation of said computed value, and further including:

41 a. means operative when all necessary primary values
 42 representative of a measured patient parameter are
 43 resident in said storage devices, for generating said
 44 display signal whereby said computed value is
 45 displayed on said display device, and

46 b. means for determining occasions when a primary
 47 value representative of one of said primary values
 48 representative of a measured patient parameter is not
 49 resident in said storage device, and in response to
 50 such determination, operative for generating a display
 51 signal whereby a prompt identifying said non-
 52 resident primary value is displayed in said display
 53 device.

1 24. A system according to claim 1 wherein at least one of the m subsets
 2 of patient data is representative of a plot of at least two measured patient
 3 characteristics as a function of a reference parameter on a common scale.

1 ³ ~~42~~. A system according to claim ² ~~41~~ wherein said reference parameter is
2 time.

1 ⁴ ~~43~~. A system according to claim 1 wherein said one subset of patient
2 data said measured characteristics and said reference parameters are
3 selectively determined by a user.

1 ⁵ ~~44~~. A system according to claim 1 wherein the data of at least one of said m
2 subsets of patient data corresponds to measured patient characteristics and associated
3 reference parameter values.

1 ⁶ ~~45~~. A system according to claim 1 wherein said measured patient characteristics
2 are from the set consisting at least of blood pressure and said associated reference
3 parameters are from the set consisting at least of time.
